WHAT IS CLAIMED IS:

1.   A method for controlling packet communications between a first network and a second network, the method comprising:

implementing a server module in a connecting node, the connecting node for monitoring one or more packets exchanged between the first and second networks;

implementing a driver module in a first node inside the first network; and

associating, with the assistance of the server and driver modules, a network address and port used by the first node with a predetermined application,

wherein the network address and port is used for sending at least one packet of the application to a second node in the second network.

2.   The method of claim 1 further comprising:

executing packet communications between the server module and the driver module to inform the connecting node about the network address and port used by the first node for the predetermined application before the first node sends a first packet of the application to the second node.

3.   The method of claim 2 wherein the network address and port used by the first node and information for identifying the predetermined application are included in a predetermined data portion of at least one packet exchanged between the server module and the driver module.

4.   The method of claim 1 wherein the driver module monitors information exchanged between an application interface (API) of the application and a network driver of the first node.

5.   The method of claim 4 further comprising:

the driver module extracting information regarding the *application from*
the information exchanged between the API and the network driver; and

sending the extracted information to the server module.

6.   The method of claim 1 wherein the step of associating further
comprises establishing a look-up table for recording a relation between the
application and the network address and port used by the first node for the
application.

7.   The method of claim 6 wherein the look-up table further comprises
a network address and port for the second node for executing the application.

8.   A computer software system for controlling packet
communications, based on applications, between a first computer network and a
second computer network, the system comprising:

a network application association (NAA) server module implemented in a
gateway node, the gateway node monitoring one or more packets exchanged
between the first and second computer networks;

an NAA driver module implemented in a first computer inside the first
computer network; and

means for associating a network address and port used by the first
computer with a predetermined application, the network address and port being
used for sending at least one packet of the application to a second computer in
the second network.

9.   The system of claim 8 further comprising:

means for executing packet communications between the NAA server module and the NAA driver module to inform the gateway node about the network address and port used by the first computer for the predetermined application before the first computer sends a first packet of the application to the second computer.

10.   The system of claim 9 wherein the network address and port used by the first computer and information for identifying the predetermined application are included in a predetermined data portion of at least one packet . exchanged between the NAA server module and the NAA driver module.

11.   The system of claim 8 wherein the NAA driver module monitors information exchanged between an application interface (API) of the application and a network driver of the first computer.

12.   The system of claim 11 wherein the NAA driver module includes means for extracting information regarding the application from the information exchanged between the API and the network driver, and means for sending the extracted information to the NAA server module.

13.   The system of claim 8 wherein the means for associating further comprises a look-up table for recording a relation between the application and the network address and port used by the first computer for the application.

14.   The system of claim 13 wherein the look-up table further comprises a network address and port for the second computer for executing the application.

15.   A method for controlling packet communications between a first computer network and a second computer network, the method comprising:

extracting, by a network application association (NAA) driver module implemented in a first computer of the first computer network, information about an application session and a network address and port used by the first computer for sending packets of the application session to a second computer in the second computer network when the first computer initially determining a port for the application session;

sending the extracted information from the NAA driver module to an NAA server module implemented in a gateway node of the first computer network, the gateway node monitoring one or more packets exchanging between the first and second computer networks;

establishing a look-up table for recording the relation between the application session and the network address and port used by the first computer for the application session; and

controlling the packet communications between the first and second network by the gateway node based on the established look-up table.

16.   The method of claim 15 wherein the step of sending is completed before the first computer sends a first packet of the application session to the second computer.

17.   The method of claim 15 wherein the network address and port used by the first computer and information for identifying the application session are included in a predetermined data portion of at least one packet exchanged between the NAA server module and the NAA driver module.

18.   The method of claim 15 wherein the NAA driver module monitors information exchanged between an application interface (API) of the application session and a network driver of the first computer.

19.   The method of claim 15 wherein the look-up table further comprises a network address and port for the second computer for executing the application session.

20.   A method for controlling packet communications between a first computer network and a second computer network based on applications, the method comprising:

extracting, by a driver module implemented in a first computer of the first computer network, information for identifying a network application session and a network address and a first port used by the first computer to send packets to a second computer in the second computer network for the application session;

sending the extracted information from the driver module to a server module implemented in a gateway node of the first computer network, the gateway node assigning a second port for the application session;

establishing a look-up table for recording the relation among the application session, the network address, the first port and the second port used for the application session by the first computer; and

controlling the packet communications between the first and second computers by the gateway node based on the established look-up table.

21.   The method of claim 20 wherein the step of sending is completed before the first computer sends a first packet of the application session to the second computer.

22. The method of claim 20 wherein the network address and the first port used by the first computer and information for identifying the application session are included in a predetermined data portion of at least one packet exchanged between the server module and the driver module.

23. The method of claim 20 wherein the driver module monitors information exchanged between an application interface (API) of the application session and a network driver of the first computer.

24. The method of claim 20 wherein the look-up table further comprises a network address and port used by the second computer for the application session.